

In the Claims:

1. (Currently amended) A wafer manufacturing apparatus comprising:

a susceptor including a support for a wafer, the wafer including a topside and a bottom side;

at least one optical fiber connected to the susceptor so that radiation from the bottom side of the wafer can be monitored;

an optical signal measurer coupled to the at least one optical fiber, the optical signal measurer generating an electrical signal responsive to the radiation measured from the bottom side of the wafer; and

a control system that is configured to maintain a deposition temperature of the wafer by

calibrating the optical signal measurer by

measuring a temperature of the susceptor at a first gas pressure;

determining a signal level of the electrical signal when the measured temperature of the susceptor is at the deposition temperature, and by

keeping, without determining the temperature of the wafer from the electrical signal, during a subsequent deposition cycle at a second gas pressure that is less than the first gas pressure, the electrical signal constant at the determined signal level during a deposition cycle.

2. (Previously presented) The wafer manufacturing apparatus according to Claim 1, wherein two optical fibers are connected to the susceptor, a first optical fiber being located near a center of the susceptor and a second optical fiber being located near an edge of the wafer.

3. (Previously Presented) The wafer manufacturing apparatus according to Claim 1, wherein the optical signal measurer filters an optical signal from the at least one optical fiber, converts the filtered optical signal into the electrical signal and provides the electrical signal as a feedback control signal to the control system.

4. (Previously Presented) The wafer manufacturing apparatus according to Claim 1, wherein the at least one optical fiber is inserted into a hole in the susceptor to access the bottom side of the wafer.
5. (Previously Presented) The wafer manufacturing apparatus according to Claim 1, wherein the at least one optical fiber comprises sapphire.
6. (Previously Presented) The wafer manufacturing apparatus according to Claim 1, wherein the at least one optical fiber comprises quartz.
7. (Previously Presented) The wafer manufacturing apparatus according to Claim 1, wherein the optical fiber is integrated in a structure that supports the susceptor.
8. (Previously Presented) The wafer manufacturing apparatus according to Claim 1, wherein the susceptor includes a rotating part and a stationary part.
9. (Previously Presented) The wafer manufacturing apparatus according to Claim 8, further comprising a thermocouple or a pyrometer arranged to measure a temperature of the susceptor.
10. (Previously Presented) The wafer manufacturing apparatus according to Claim 8, wherein optical signals from the at least one optical fiber couple to the optical signal measurer via a stationary monitoring device.
11. (Previously Presented) The wafer manufacturing apparatus according to Claim 2, wherein the optical signal measurer generates a first electrical signal from radiation monitored from the bottom side of the wafer by the first optical fiber and the optical signal measurer generates a second electrical signal from radiation monitored from the bottom side of the wafer by the second optical fiber, and wherein the control system maintains a temperature of the wafer at the center to keep the first electrical signal constant during the deposition cycle and the control system maintains a temperature of

the wafer at the edge to keep the second electrical signal constant during the deposition cycle.

12. (Currently amended) A method for manufacturing a wafer using an epitaxy process that involves heating the wafer to a deposition temperature, the method comprising the steps of:

during a high-pressure calibration mode:

heating a susceptor and a wafer at a high-gas pressure;

receiving an optical radiation signal from a backside of ~~[[a]]~~ the wafer;

filtering out a spectrum of the radiation signal for which the wafer is

opaque;

converting the filtered radiation signal into an electrical signal;

measuring the temperature of a susceptor holding the wafer, and

storing a value of the electrical signal when the measures temperature of

the susceptor corresponds to the deposition temperature; and

during a subsequent deposition process carried out at a lower-gas pressure than the high-gas pressure: ~~[[and]]~~

~~controlling a wafer temperature by keeping, without determining the wafer temperature from the electrical signal, the electrical signal constant at the stored value during a deposition cycle.~~

13. (Previously presented) The method according to Claim 12, wherein the receiving step includes receiving a first optical radiation signal from a center of the wafer and a second optical radiation signal from an edge of the wafer.

14. (Original) The method according to Claim 13, wherein the controlling step includes keeping the first and second optical radiation signals constant from an onset of the deposition.

15. (Previously presented) The method according to Claim 12, wherein the receiving step includes receiving the optical radiation signal from a center of the wafer and receiving a further optical radiation signal from an edge of the wafer, the filtering step includes

filtering out a spectrum of the further optical radiation signal for which the wafer is opaque, the converting step includes converting the filtered further optical radiation signal into a further electrical signal, and the controlling step includes controlling a wafer temperature at the edge of the wafer by keeping the further electrical signal constant during the deposition cycle.

16. (Currently amended) The method according to Claim 15, wherein the controlling step includes keeping the electrical signal constant during the deposition cycle without determining the ~~wafer~~ susceptor temperature at the center of the wafer and keeping the further electric signal constant during the deposition cycle without determining the ~~wafer~~ susceptor temperature at the edge of the wafer.

17. (Previously presented) The wafer manufacturing apparatus according to Claim 3, wherein the optical signal measurer is configured to filter out a spectrum of the optical signal for which the wafer is opaque.

18. (Currently amended) The wafer manufacturing apparatus according to Claim 11, wherein the control system is configured to keep the first electrical signal constant during the deposition cycle without determining the temperature of the ~~wafer~~ susceptor at the center and to keep the second electric signal constant during the deposition cycle without determining the temperature of the ~~wafer~~ susceptor at the edge.

19. (Previously presented) The wafer manufacturing apparatus according to Claim 1, further comprising a pyrometer that is configured to measure a temperature of the susceptor, wherein the pyrometer is not part of the optical signal measurer.

20. (Previously presented) The wafer manufacturing apparatus according to Claim 1, wherein the optical signal measurer includes a transducer that is configured to generate the electrical signal.